

Selected Publications

Books:

1. Introduction to Radon transforms: With elements of fractional calculus and harmonic analysis (Encyclopedia of Mathematics and its Applications), Cambridge University Press, 2015, 596 pages, ISBN-10: 0521854598, ISBN-13: 978-0521854597.
2. Fractional integrals and potentials. Pitman Monographs and Surveys in Pure and Applied Mathematics, 82. Longman, Harlow, 1996. xiv+409 pages, ISBN: 0-582-25341-1.
3. Radon transforms, geometry, and wavelets. Papers from the AMS Special Session held in New Orleans, LA, January 7–8, 2007 and from the workshop held in Baton Rouge, LA, January 4–5, 2007. Edited by Gestur Ólafsson, Eric L. Grinberg, David Larson, Palle E. T. Jorgensen, Peter R. Massopust, Eric Todd Quinto and Boris Rubin. Contemporary Mathematics, 464. American Mathematical Society, Providence, RI, 2008. xiv+264 pp. ISBN: 978-0-8218-4327-7 42-06.
4. Fractional integrals, potentials, and Radon transforms (2nd edition), Chapman and Hall/CRC, 2024, 576 pp. DOI: 10.1201/9781032675022, ISBN: 9781032675022.

Articles:

- Fractional integrals and tangency problems in integral geometry, preprint, (2024), arXiv:2412.20198v1 [math.FA].
- On the injectivity of the shifted Funk-Radon transform and related harmonic analysis, *J. d'Anal. Math.* (2024). <https://doi.org/10.1007/s11854-024-0348-x>, 24 pp.
- Fractional integrals associated with Radon transforms, *Forum Math.* 35 (2023), no. 6, 1727–1759.
- On the injectivity of integral operators related to the Euler-Poisson-Darboux equation and shifted k -plane transforms, *Anal. Math. Phys.* 13 (2023), no. 4, Paper No. 56, 15 pp.
- On fractional integrals generated by Radon transforms over paraboloids, *Forum Math.* 35 (2023), no. 3, 863–881.
- On the hemispherical transform in the half-space and related Radon transforms, *Analysis and Applications*, 21 (2023), no. 4, 1001–1012.
- Higher-rank Radon transforms on constant curvature spaces, *Journal of Mathematical Sciences*, 266 (2022), 148–195.
- On the spherical slice transform, *Analysis and Applications*, 20 (2022), no. 3, 483–497.

- Non-geodesic spherical Funk transforms with one and two centers, (joint with M. Agranovsky), in *Operator Algebras, Toeplitz Operators and Related Topics, Operator Theory: Advances and Applications 279*, W. Bauer et al. (eds.), 29–52, Springer Nature Switzerland AG 2020.
- Riesz potentials and orthogonal Radon transforms on affine Grassmannians, (joint with Y. Wang), *Fract. Calc. Appl. Anal.*, Vol.24, No 2 (2021), 376–392.
- Erdélyi–Kober fractional integrals and Radon transforms for mutually orthogonal affine planes, (joint with Y. Wang), *Frac. Calc. Appl. Anal.*, vol. 23, no. 4 (2020), 967–979.
- The λ -cosine transforms, differential operators, and Funk transforms on Stiefel and Grassmann manifolds, *Adv. Math.* 392 (2021), Paper No. 108022, 43 pp.
- The Fourier transform approach to inversion of lambda-cosine and Funk transforms on the unit sphere, *Proc. AMS*, 150 (2022), no. 5, 2037–2047.
- On two families of Funk-type transforms (joint with M. Agranovsky), *Anal. Math. Phys.* 10 (2020), no. 4, Paper No. 44, 21 pp.
- Radon transform on Grassmannians for mutually orthogonal planes (joint with Yingzhan Wang), arXiv:1901.01150 [math.FA].
- Reconstruction of functions on the sphere from their integrals over hyperplane sections, *Anal.Math.Phys.* Vol.9, Issue 4 (2019), 1627—1664.
- The vertical slice transform in spherical tomography, *Frac. Calc. Appl. Anal.*, vol. 22, no. 4 (2019), 899–917.
- Inversion formulas of integral geometry in real hyperbolic space (joint with W. Bray), *Contemp. Math.*, 733, *Functional Analysis and Geometry. Selim Krein Centennial* American Math. Society, Providence, RI 2019, 81–96.
- A note on the Blaschke-Petkantschin formula, Riesz distributions, and Drury’s identity, *Fract. Calc. Appl. Anal.* Vol. 21, No 6 (2018), 1641–1650.
- Norm estimates for k-plane transforms and geometric inequalities, *Adv. Math.*, 349 (2019), 29–55.
- Radon-John transforms and spherical harmonics (joint with R. Estrada), *Contemp. Math.*, 714 (2018) 131–142.
- Radon transforms over lower-dimensional horospheres in real hyperbolic space (joint with W. Bray), *Trans. Amer. Math. Soc.* 372 (2019), 1091–1112.

- New inversion formulas for Radon transforms on affine Grassmannians (joint with Yingzhan Wang), *J. Funct. Anal.* 274 (2018), no. 10, 2792—2817.
- On Radon transforms between lines and hyperplanes (joint with Yingzhan Wang), *Internat. J. Math.* 28 (2017), no. 13, 1750093, 18 pp.
- On the determination of star bodies from their half-sections, *Mathematika* 63 (2017), no. 2, 462—468.
- Gegenbauer-Chebyshev integrals and Radon transforms, I, *Analysis and Mathematical Physics*, 7 (1917), Issue 2, 117—150.
- Radon Transforms and Gegenbauer-Chebyshev integrals, II; Examples, *Analysis and Mathematical Physics*, 7 (1917), Issue 4, 349—375.
- New inversion formulas for the horospherical transform, *The Journal of Geometric Analysis*, 27 (2017), no. 1, 908—946.
- Null spaces of Radon transforms (joint with R. Estrada), *Advances in Math.*, 290 (2016), 1159—1182.
- Overdetermined transforms in integral geometry, *Complex analysis and dynamical systems VI. Part 1*, 291—313, *Contemp. Math.*, 653, Amer. Math. Soc., Providence, RI, 2015.
- Weighted norm inequalities for k-plane transforms, *Proc. Amer. Math. Soc.*, 142 (2014), 3455—3467.
- The λ -cosine transforms with odd kernel and the hemispherical transform, *Fract. Calc. and Appl. Analysis*, 17 (2014), no. 3, 765—806.
- Semyanisty fractional integrals and Radon transforms, *Cont. Math.*, 598 (2013), 221—237.
- Analytic and group-theoretic aspects of the cosine transform (with G. Ólafsson and A. Pasquale), *Cont. Math.*, 598 (2013), 167—188.
- On the Funk-Radon-Helgason inversion method in integral geometry, *Cont. Math.*, 599 (2013), 175—198.
- Method of analytic continuation for the inverse spherical mean transform in constant curvature spaces (with Y.A. Antipov and R. Estrada), *Journal D'Anal. Math.*, 118 (2012), 623—656.
- A generalization of the Mader-Helgason inversion formulas for Radon transforms (with Y.A. Antipov), *Trans. Amer. Math. Soc.*, 364 (2012), 6479—6493.

- Funk, Cosine, and Sine transforms on Stiefel and Grassmann manifolds, *Journal of Geometric Analysis*, 23, Issue 3 (2013), 1441-1497.
- On some inversion formulas for Riesz potentials and k-plane transforms, *Fract. Calc. and Appl. Analysis*, vol. 15, Number 1 (2012), 34-43.
- The Radon transform on the Heisenberg group and the transversal Radon transform, *J. Funct. Anal.*, 262 (2012), 234-272.
- Comparison of volumes of convex bodies in real, complex, and quaternionic spaces, *Advances in Math.*, 225 (2010), 1461-1498.
- Invariant functions on Grassmannians (with G. Olafsson), in: *Radon Transforms, Geometry and Wavelets*, Cont. Math., 464, 201-211, AMS, Providence, RI, 2008.
- Inversion formulae for the spherical mean in odd dimensions and the Euler-Poisson-Darboux equation, *Inverse Problems*, 24 (2008) 025021 (10pp).
- Composite Wavelet Transforms: Applications and Perspectives (with I.A. Aliev, S. Sezer, S.B. Uyhan), in: *Radon Transforms, Geometry and Wavelets*, Cont. Math., 464, 1-25, AMS, Providence, RI, 2008.
- Intersection bodies and generalized cosine transforms, *Advances in Math.*, 218 (2008), 696-727.
- Method of mean value operators for Radon transforms in the space of matrices (with E. Ournycheva), *Intern. J. Math.*, 19 (2008), 245-283.
- Semyanisty's integrals and Radon transforms on matrix spaces (with E. Ournycheva), *The Journal of Fourier Analysis and Applications*, 14 (2008), no.1, 60-88.
- The lower dimensional Busemann-Petty problem for bodies with the generalized axial symmetry, *Israel J. of Math.* 173 (2009), 213-233.
- The Radon transform of functions of matrix argument (with E. Ournycheva), math.FA/0406573.
- Higher rank wavelet transforms, ridgelet transforms, and Radon transforms on the space of matrices (with G. Olafsson and E. Ournycheva), *Appl. Comput. Harmon. Anal.*, 21 (2006), 182-203.
- The Composite cosine transform on the Stiefel manifold and generalized zeta integrals (with E. Ournycheva), *Contemp. Math.*, 405 (2006), 111-133.
- Composite cosine transforms (with E. Ournycheva), *Mathematika*, 52 (2005), 53-68.

- Riesz potentials and integral geometry in the space of rectangular matrices, *Advances in Math.*, 205 (2006), 549-598.
- Generalizations of the Busemann-Petty problem for sections of convex bodies (with G. Zhang), *J. Funct. Anal.*, 213 (2004), 473-501.
- Radon transforms on affine Grassmannians, *Trans. Amer. Math. Soc.*, 356 (2004), 5045-5070.
- Radon inversion on Grassmannians via Garding-Gindikin fractional integrals (with E. Grinberg), *Annals of Mathematics*, 159 (2004), 809-843.
- An analogue of the Fuglede formula in integral geometry on matrix spaces (with E. Ournycheva), *Contemporary Math.*, 382 (2005), 305-320.
- Reconstruction of functions from their integrals over k -planes, *Israel J. of Math.*, 141 (2004), 93-117.
- Totally geodesic Radon transform of L^p -functions on real hyperbolic space (with C.A. Berenstein), in *Fourier Analysis and Convexity, Series: Applied and Numerical Harmonic Analysis*, Brandolini, L.; Colzani, L.; Iosevich, A.; Travaglini, G. (Eds.), 2004.
- Convolution-backprojection method for the k -plane transform, and Calderón's identity for ridgelet transforms, *Appl. Comput. Harmon. Anal.*, 16 (2004), 231-242.
- Spherical harmonics associated to the Laplace-Bessel operator and generalized spherical convolutions (with I.A. Aliev), *Analysis and Applications (Singap)*, 1, (2003), 81-109.
- Notes on Radon transforms in integral geometry, *Fract. Calc. Appl. Anal.* 6 (2003), no. 1, 25-72.
- Radon, cosine, and sine transforms on real hyperbolic space, *Advances in Math.*, 170 (2002), 206-223.
- Inversion formulas for the spherical Radon transform and the generalized cosine transform, *Adv. in Appl. Math.* 29 (2002), 471-497.
- Inversion of exponential k -plane transforms, *The Journal of Fourier Analysis and Applications*, 6 (2000), 185-205.
- Fractional calculus and wavelet transforms in integral geometry, *Fractional Calculus and Applied Analysis*, (1998), no. 2, 193-219.
- Generalized Minkowski-Funk transforms and small denominators on the sphere, *Fractional Calculus and Applied Analysis*, 3 (2000), no. 2, 177-203.

See also MathSciNet for the complete list of publications.